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(54) Method of manufacturing an electro-optical device

(57) An object of the invention is to reduce the manufacturing cost of EL display devices and electronic devices incorporating the EL display devices.

An EL material is formed by printing in an active ma-

trix EL display device. Relief printing or screen printing may be used as the method of printing. Manufacturing steps of the EL layer is therefore simplified and reduction of manufacturing cost is devised.

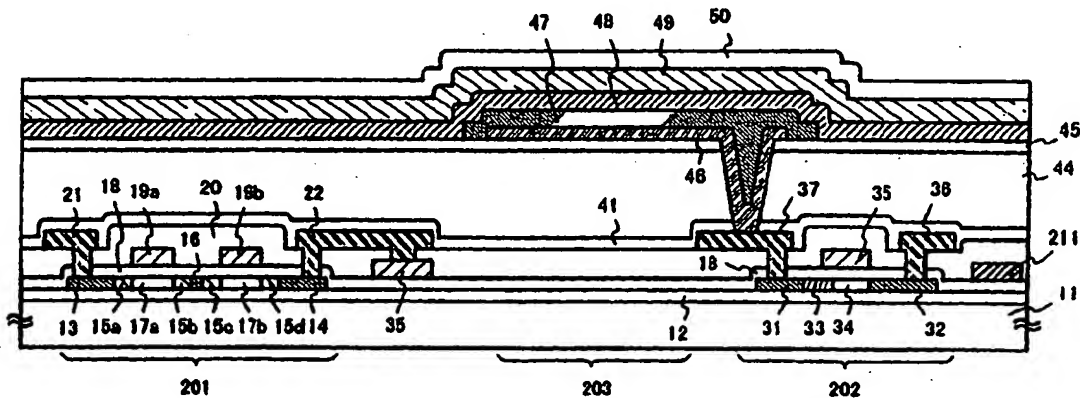


Fig. 2



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EUROPEAN SEARCH REPORT

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EP 00 11 3587

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	EP 0 901 174 A (SUMITOMO CHEMICAL CO) 10 March 1999 (1999-03-10) * page 10, paragraphs 72-74 * * page 11, paragraphs 79-82 *	1,6,7,9, 11,13,14	H01L27/15 H01L51/20
Y	---	8,12,15, 16	
Y	US 5 821 003 A (KIMURA HIROYA ET AL) 13 October 1998 (1998-10-13) * column 6, line 61-65 *	8,15	
X	EP 0 880 303 A (SEIKO EPSON CORP) 25 November 1998 (1998-11-25) * page 10, line 52-58 * * page 11, line 1-18 * * page 13, line 10-19 * * page 14, line 17-19 * * page 5, line 6-18 * * page 6, line 11-13 *	1-7,10	
Y	---	12,16	
P,X	EP 0 954 205 A (SONY CORP) 3 November 1999 (1999-11-03) * page 3, paragraph 17 * * page 4, paragraphs 21,23,32 * * page 5, paragraph 37 * * page 7, paragraph 51 *	1,6-9, 11,13-15	TECHNICAL FIELDS SEARCHED (Int.Cl.7) H01L
X	PATENT ABSTRACTS OF JAPAN vol. 016, no. 084 (E-1172), 28 February 1992 (1992-02-28) & JP 03 269995 A (RICOH CO LTD), 2 December 1991 (1991-12-02) * abstract * --- -/--	1,6,7	
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 3 March 2004	Examiner Faou, M
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

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Office

EUROPEAN SEARCH REPORT

Application Number
EP 00 11 3587

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	PATENT ABSTRACTS OF JAPAN vol. 1998, no. 08, 30 June 1998 (1998-06-30) -& JP 10 077467 A (SUMITOMO CHEM CO LTD), 24 March 1998 (1998-03-24) * abstract * * figure 1 * -----	1, 6, 7	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
THE HAGUE		3 March 2004	Faou, M
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 03 82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 00 11 3587

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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03-03-2004

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 0901174	A	10-03-1999	EP 0901174 A2	10-03-1999
			JP 11176576 A	02-07-1999
			US 6403236 B1	11-06-2002
US 5821003	A	13-10-1998	CA 2163010 A1	21-09-1995
			EP 0702075 A1	20-03-1996
			WO 9525149 A1	21-09-1995
			KR 246496 B1	01-04-2000
			TW 406199 B	21-09-2000
EP 0880303	A	25-11-1998	JP 10153967 A	09-06-1998
			DE 69727212 D1	19-02-2004
			EP 0880303 A1	25-11-1998
			CN 1212114 A ,C	24-03-1999
			EP 1211916 A1	05-06-2002
			EP 1376716 A2	02-01-2004
			EP 1376717 A2	02-01-2004
			WO 9824271 A1	04-06-1998
			US 2003054186 A1	20-03-2003
			US 2002155215 A1	24-10-2002
			US 2001001050 A1	10-05-2001
			US 2002136823 A1	26-09-2002
			US 2002041926 A1	11-04-2002
EP 0954205	A	03-11-1999	JP 11273859 A	08-10-1999
			EP 0954205 A2	03-11-1999
JP 03269995	A	02-12-1991	NONE	
JP 10077467	A	24-03-1998	NONE	